

**Assessment Recommendations for**

# **Eureka Math *A Story of Units***

## **Third Grade – Module 1**

### **2015-2016**

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## Module Assessment Overview

### Purpose of Assessments

**Mid-Module Assessment:** These tasks address approximately the **first half** of the module's learning objectives, and provide important information for instruction and for grading.

**End-of-Module Assessment:** These tasks are based on all standards addressed in order to gauge students' full range of understanding of the **module as a whole**. The End-of-Module assessment should carry more weight than the Mid-Module Assessment in terms of student grades in the appropriate domain.

### Administration of Assessments

- Mid- and End-of-Module Assessments are designed to be completed in approximately one class period. However, The tests can be given over multiple days as needed.
- Assessments are designed to be completed independently by students, without assistance.
- These tasks should not be preceded by review of similar problems.

### Grading Guidance

The grading scale on Elementary Report Cards has been changed for 2015-2016 and beyond. Please note that **4 now indicates advanced understanding of grade level standards expected at this time of year.**

**4 – Advanced:** Student demonstrates advanced understanding of grade level standards expected at this time of year.

**3 – Proficient:** Student demonstrates proficiency with grade level standards expected at this time of year.

**2 – Basic:** Student demonstrates basic understanding of grade level standards expected at this time of year. Student needs additional support and practice.

**1 – Below Basic:** Student demonstrates minimal understanding of grade level standards expected at this time of year. Student needs significant support and practice.

**Rubrics and Checklists have been updated to reflect this change. Rubrics have been further modified from Eureka Math originals for clarity, accuracy, and alignment to Bethel's grade scale.**

#### General Grading Guidance:

- On the report card, student learning is reported by CCSS domain. The Third Grade CCSS domains are: Operations and Algebraic Thinking, Number and Operations in Base Ten, Number and Operations – Fractions, Measurement and Data, and Geometry.
- Grades in each domain should be based on multiple sources of evidence, including the Mid- and End-of-Module Assessments. The End-of-Module assessment should carry more weight than the Mid-Module Assessment in terms of student grades in the appropriate domain.

#### Module 1 Grading Guidance:

- *Standards 3.OA.1, 3.OA.2, and 3.OA.6 are only assessed in Third Grade Module 1.* The remaining standards assessed in this module will be assessed again in Module 3. (See checklist on page 5.)

### Updates

See "Grading Guidance" for updates on Bethel's grade scale and changes to Eureka Math Assessments.

## Grade 3 Common Core State Standards Checklist by Module

This grade-level chart provides an at-a-glance view of when each standard is addressed. Shaded boxes indicate standards that are assessed in Module 1. Some standards may be assessed again in future modules. *Note that standards included in major clusters are followed by an asterisk (\*)*. Please refer to the Curriculum Overview of A Story of Units for a curriculum map and detailed grade-level descriptions including a summary of the year, a rationale of the module sequence, and a standards alignment chart.

| CCSS  |     | GRADE 3 MODULES |   |   |   |   |   |   |
|-------|-----|-----------------|---|---|---|---|---|---|
|       |     | 1               | 2 | 3 | 4 | 5 | 6 | 7 |
| 3.OA  | 1*  | X               |   |   |   |   |   |   |
|       | 2*  | X               |   |   |   |   |   |   |
|       | 3*  | X               |   | X |   |   |   |   |
|       | 4*  | X               |   | X |   |   |   |   |
|       | 5*  | X               |   | X |   |   |   |   |
|       | 6*  | X               |   |   |   |   |   |   |
|       | 7*  | X               |   | X |   |   |   |   |
|       | 8*  | X               |   | X |   |   |   |   |
|       | 9*  |                 |   | X |   |   |   |   |
| 3.NBT | 1   |                 | X |   |   |   |   |   |
|       | 2   |                 | X |   |   |   |   |   |
|       | 3   |                 |   | X |   |   |   |   |
| 3.NF  | 1*  |                 |   |   |   | X |   |   |
|       | 2a* |                 |   |   |   | X |   |   |
|       | 2b* |                 |   |   |   | X |   |   |
|       | 3a* |                 |   |   |   | X |   |   |
|       | 3b* |                 |   |   |   | X |   |   |
|       | 3c* |                 |   |   |   | X |   |   |
|       | 3d* |                 |   |   |   | X |   |   |
| 3.MD  | 1*  |                 | X |   |   |   |   |   |
|       | 2*  |                 | X |   |   |   |   |   |
|       | 3   |                 |   |   |   |   | X |   |
|       | 4   |                 |   |   |   |   | X | X |
|       | 5a* |                 |   |   | X |   |   |   |
|       | 5b* |                 |   |   | X |   |   |   |
|       | 6*  |                 |   |   | X |   |   |   |
|       | 7a* |                 |   |   | X |   |   |   |
|       | 7b* |                 |   |   | X |   |   |   |
|       | 7c* |                 |   |   | X |   |   |   |
|       | 7d* |                 |   |   | X |   |   |   |
|       | 8   |                 |   |   |   |   |   | X |
| 3.G   | 1   |                 |   |   |   |   |   | X |
|       | 2   |                 |   |   |   | X |   |   |

## Third Grade Module 1: Mid-Module Assessment Task Score Sheet

### A Progression of Learning

A Progression of Learning is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left to right. The learning goal for each student is to move to the last step, “Evidence of solid reasoning with a correct answer”. These steps are meant to help teachers and students identify and celebrate what the student CAN do now, and what they need to work on next.

| Score Key: A Progression of Learning  |  |   |  |
|---|--|---|--|
| Little or no evidence of reasoning with an incorrect answer.<br><br>(1 Point) | Evidence of some reasoning with an incorrect answer.<br><br>(2 Points) | Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.<br><br>(3 Points) | Evidence of solid reasoning with a correct answer.<br><br>(4 Points) |

| Module 1: Mid-Module Assessment |                                   |           |        |        |        |
|---------------------------------|-----------------------------------|-----------|--------|--------|--------|
| Question                        | Domain                            | Standards |        |        |        |
|                                 | Operations and Algebraic Thinking | 3.OA.1    | 3.OA.2 | 3.OA.5 | 3.OA.6 |
| 1                               | 1 2 3 4                           | X         | X      |        | X      |
| 2                               | 1 2 3 4                           | X         |        |        |        |
| 3                               | 1 2 3 4                           | X         |        | X      |        |

Note: For more information about standards assessed in this module, see back of this score sheet.

| Domain Score | Operations and Algebraic Thinking |              |
|--------------|-----------------------------------|--------------|
| Total Points |                                   |              |
| Level        | 4                                 | 11-12 points |
|              | 3                                 | 9-10 points  |
|              | 2                                 | 5-8 points   |
|              | 1                                 | 3-4 points   |

Note: The lowest rubric score is 1. Therefore, any student scoring at level 1 for each assessment item will still be assigned 4 points. This translates to a score of 1 in the grade book.

## Third Grade Module 1: Mid-Module Assessment Task Score Sheet (continued)

### Third Grade Module 1: Mid-Module Assessment Task (Topics A–C) Clusters and Standards Addressed

Represent and solve problems involving multiplication and division.

- 3.OA.1** Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .*
- 3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as  $56 \div 8$ .*

Understand properties of multiplication and the relationship between multiplication and division.

- 3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)*
- 3.OA.6** Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8.*

## Third Grade Module 1: Mid-Module Assessment Task Rubric

| Third Grade Module 1 Mid-Module Assessment: A Progression of Learning |   |   |  |   |
|---|---|---|--|---|
| Assessment Task Item and Standards Addressed                          | <b>STEP 1</b><br><b>Little or no evidence of reasoning with an incorrect answer.</b><br><br><b>(1 Point)</b>  | <b>STEP 2</b><br><b>Evidence of some reasoning with an incorrect answer.</b><br><br><b>(2 Points)</b> | <b>STEP 3</b><br><b>Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.</b><br><br><b>(3 Points)</b> | <b>STEP 4</b><br><b>Evidence of solid reasoning with a correct answer.</b><br><br><b>(4 Points)</b> |
| <b>1</b><br><br><b>3.OA.1</b><br><b>3.OA.2</b><br><b>3.OA.6</b>       | Student correctly answers 0-1 of the six parts.   | Student correctly answers 2-3 of the six parts.   | Student correctly answers 4-5 of the six parts.  | Student correctly answers 6 of the six parts. (See below.)  |
|   | a. (1) Draws an array to represent 2 rows of 5 carrots.<br>b. (2) Draws rows on original array to represent 3 more rows of 5 carrots.<br>(3) Completes the number sentence (2 fives + 3 fives = 5 fives)<br>(4) Provides accurate explanation of the number sentence<br>c. (5) Finds the total number of carrots (25)<br>d. (6) Writes $5 \times 5$ (may or may not provide solution) |   |  |   |
| <b>2</b><br><br><b>3.OA.1</b>   | Student correctly answers 0 of the two parts.   |   | Student correctly answers 1 of the two parts.  | Student correctly answers 2 of the two parts. (See below.)  |
|   | a. (1) Represents 3 groups, each with a value of 5.<br>b. (2) Writes $5 \times 3 = 15$ or $3 \times 5 = 15$   |   |  |   |
| <b>3</b><br><br><b>3.OA.1</b><br><b>3.OA.5</b>                        | Student correctly answers 0-1 of the four parts.  | Student correctly answers 2 of the four parts.  | Student correctly answers 3 of the four parts.   | Student correctly answers 4 of the four parts. (See below.)   |
|   | a. (1) Writes $12 \div 3 = 4$<br>(2) Identifies that the answer represents the number of flowers in each row<br>b. (3) Draws an array<br>c. (4) Writes an explanation that includes the distributive property (may or may not use the words <i>distributive property</i> )  |   |  |   |

## Third Grade Module 1: Mid-Module Assessment Task Key

Name Gina

Date \_\_\_\_\_

1. Mrs. Tran plants 2 rows of 5 carrots in her garden.

- a. Draw an array that represents Mrs. Tran's carrots. Use an X to show each carrot.

X X X X X  
X X X X X  
O O O O O  
O O O O O  
O O O O O

- b. Mrs. Tran adds 3 more rows of 5 carrots to her garden.

- Use circles to show her new carrots on the array in Part (a).
- Fill in the blanks below to show how she added the five rows.

2 fives + 3 fives = 5 fives

- Write a sentence to explain your thinking.

Mrs. Tran planted 2 rows of five first. Then she planted 3 more rows of five. Now she has 5 rows of five.

- c. Find the total number of carrots Mrs. Tran planted.

R1 R2 R3 R4 R5  
5, 10, 15, 20, 25

- d. Write a multiplication sentence to describe the array representing the total number of carrots Mrs. Tran planted.

$$5 \times 5 = 25$$

Mrs. Tran planted 25 carrots.

**Third Grade Module 1: Mid-Module Assessment Task Key (continued)**

2. Mrs. Tran picks 15 tomatoes from her garden. She puts 5 tomatoes in each bag.

- a. Draw Mrs. Tran's bags of tomatoes.



- b. Write a multiplication number sentence that describes your drawing in Part (a).

$$3 \times 5 = 15$$

3. Mrs. Tran plants 12 sunflowers in her garden. She plants them in 3 rows.

- a. Fill in the blanks below to make a true division sentence. What does the answer represent?

$$12 \div 3 = 4$$

The answer, 4, is how many flowers are in each row.

- b. Mrs. Tran adds 2 more identical rows of sunflowers to her 3 original rows. Draw an array to show how many flowers she has now.

X X X X 4  
 X X X X 8  
 X X X X 12  
 O O O O 16  
 O O O O 20

She has 20 flowers now.

- c. Mrs. Tran figured out how many flowers she planted. Her work is shown in the box below. Would Mrs. Tran get the same result if she multiplied  $5 \times 4$ ? Explain why or why not.

$$(3 \times 4) + (2 \times 4) = 12 + 8 = 20$$

Yes, she would get the same answer!  $5 \times 4 = 20$   
 If you look at her work,  $(3 \times 4) + (2 \times 4)$  is the same as  $(3 + 2) \times 4$ , which is  $5 \times 4$ . Her work shows the new rows of flowers and the old rows of flowers added together.



## Third Grade Module 1: End-of-Module Assessment Task Score Sheet

### A Progression of Learning

A Progression of Learning is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left to right. The learning goal for each student is to move to the last step, “Evidence of solid reasoning with a correct answer”. These steps are meant to help teachers and students identify and celebrate what the student **CAN** do now, and what they need to work on next.

Note: Problem 5 is scored differently since it is a timed assessment of fluency. Students complete as many problems as they can in 100 seconds. Although this page of the assessment contains 40 questions, answering 30 correct within the time limit is considered passing.

#### Score Key: A Progression of Learning

|   |  |   |  |
|---|--|---|--|
| Little or no evidence of reasoning with an incorrect answer.<br><br>(1 Point) | Evidence of some reasoning with an incorrect answer.<br><br>(2 Points) | Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.<br><br>(3 Points) | Evidence of solid reasoning with a correct answer.<br><br>(4 Points) |
|---|--|---|--|

| Module 1: End-of-Module Assessment |                                   |           |        |        |        |        |        |        |        |
|------------------------------------|-----------------------------------|-----------|--------|--------|--------|--------|--------|--------|--------|
| Question                           | Domain                            | Standards |        |        |        |        |        |        |        |
|                                    | Operations and Algebraic Thinking | 3.OA.1    | 3.OA.2 | 3.OA.3 | 3.OA.4 | 3.OA.5 | 3.OA.6 | 3.OA.7 | 3.OA.8 |
| 1                                  | 1 2 3 4                           | X         | X      | X      | X      |        |        |        |        |
| 2                                  | 1 2 3 4                           |           |        | X      |        | X      |        |        |        |
| 3                                  | 1 2 3 4                           |           |        | X      |        | X      |        |        |        |
| 4                                  | 1 2 3 4                           |           |        | X      |        |        | X      |        | X      |
| 5                                  | 1 2 3 4                           |           |        |        |        |        |        | X      |        |

| Domain Score | Operations and Algebraic Thinking |              |
|--------------|-----------------------------------|--------------|
| Total Points |                                   |              |
| Level        | 4                                 | 18-20 points |
|              | 3                                 | 13-17 points |
|              | 2                                 | 8-12 points  |
|              | 1                                 | 5-7 points   |

Note: For more information about standards assessed in this module, see back of this score sheet.

Note: The lowest rubric score is 1. Therefore, any student scoring at level 1 for each assessment item will still be assigned 4 points. This translates to a score of 1 in the grade book.

## Third Grade Module 1: End-of-Module Assessment Task Score Sheet (continued)

### Third Grade Module 1: End-of-Module Assessment Task Clusters and Standards Addressed

#### 3.OA.A Represent and solve problems involving multiplication and division.

- 3.OA.1** Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .*
- 3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as  $56 \div 8$ .*
- 3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 2.)
- 3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 \times ? = 48$ ,  $5 = \_ \div 3$ ,  $6 \times 6 = ?$*

#### 3.OA.B Understand properties of multiplication and the relationship between multiplication and division.

- 3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)*
- 3.OA.6** Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8.*

#### 3.OA.C Multiply and divide within 100.

- 3.OA.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

#### 3.OA.D Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- 3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using the mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order, i.e., Order of Operations.)

## Third Grade Module 1: End-of-Module Assessment Task Rubric

| Third Grade Module 1 End-of-Module: A Progression of Learning                    |   |  |   |  |
|--|---|--|---|--|
| Assessment Task Item and Standards Addressed                                     | Step 1<br>Little or no evidence of reasoning with an incorrect answer.<br><br>(1 Point)   | Step 2<br>Evidence of some reasoning with an incorrect answer.<br><br>(2 Points) | Step 3<br>Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.<br><br>(3 Points) | Step 4<br>Evidence of solid reasoning with a correct answer.<br><br>(4 Points) |
| <b>1</b><br><br><b>3.OA.1</b><br><b>3.OA.2</b><br><b>3.OA.3</b><br><b>3.OA.4</b> | Student correctly answers <b>0-1</b> of the six parts.  | Student correctly answers <b>2-3</b> of the six parts.                           | Student correctly answers <b>4-5</b> of the six parts.  | Student correctly answers <b>6</b> of the six parts. (See below.)              |
|  | <p>(1) Draws a picture, (2) writes a multiplication sentence, and (3) answers 24.</p> <p>a. (4) Explains that the product, 24, represents the total number of desks.</p> <p>b. (5) Fills in the blanks to complete the related division sentence.</p> <p>c. (6) Explains that the quotient, 6, represents the number of groups.</p>   |  |   |  |
| <b>2</b><br><br><b>3.OA.3</b><br><b>3.OA.5</b>                                   | Student correctly answers <b>0-2</b> of the seven parts.  | Student correctly answers <b>3-4</b> of the seven parts.                         | Student correctly answers <b>5-6</b> of the seven parts.  | Student correctly answers <b>7</b> of the seven parts. (See below.)            |
|  | <p>a. (1) Draws an array with 9 rows of 2, (2) writes a multiplication sentence (<math>9 \times 2 = 18</math> or <math>2 \times 9 = 18</math>), and (3) circles 9.</p> <p>b. (4) Draws an array with 2 rows of 9, (5) writes a different multiplication sentence (<math>9 \times 2 = 18</math> or <math>2 \times 9 = 18</math>), and (6) circles 9.</p> <p>c. (7) Provides an accurate explanation of the commutative property in Part (c).</p> |  |   |  |
| <b>3</b><br><br><b>3.OA.3</b><br><b>3.OA.5</b>                                   | Student correctly answers <b>0-1</b> of the six parts.  | Student correctly answers <b>2-3</b> of the six parts.                           | Student correctly answers <b>4-5</b> of the six parts.  | Student correctly answers <b>6</b> of the six parts. (See below.)              |
|  | <p>a. (1) Fills in the blanks to complete the expressions.</p> <p>b. (2) Fills in the unknowns in the equation and uses the distributive property to calculate the (3) total number of apples as 24.</p> <p>c. (4) Draws two more rows of green apples in the array in Part (a), (5) fills in the unknowns, and (6) calculates the total number of apples as 32.</p>  |  |   |  |
| <b>4</b><br><br><b>3.OA.3</b><br><b>3.OA.6</b><br><b>3.OA.8</b>                  | Student correctly answers <b>0-1</b> of the five parts.   | Student correctly answers <b>2-3</b> of the five parts.                          | Student correctly answers <b>4</b> of the five parts.   | The student correctly answers <b>5</b> of the five parts. (See below.)         |
|  | <p>a. (1) Draws a picture, (2) writes a division sentence, and (3) calculates the number of questions.</p> <p>b. (4) Explains division as an unknown factor problem.</p> <p>c. (5) Calculates the total number of points the class earned on both days as 85.</p>   |  |   |  |

Assessment Recommendations for Eureka Math A Story of Units  
Teaching and Learning Department - Bethel School District

Third Grade Module 1 End-of-Module: A Progression of Learning

5

3.OA.7

Use the attached sample work to correct students' answers on the fluency page of the assessment.

4: 36-40 correct

3: 30 – 35 correct

2: 15 - 29

1: 0 - 14

**Students who answer 30 or more questions correctly within the allotted time “pass” this portion of the assessment.**

They are ready to move on to the more complicated fluency page given with the Module 2 End-of-Module Assessment. For students who do not pass, you may choose to re-administer this fluency page with each subsequent end-of-module assessment until they are successful.

Analyze the mistakes students make on this assessment to further guide your fluency instruction. Possible questions to ask as you analyze are:

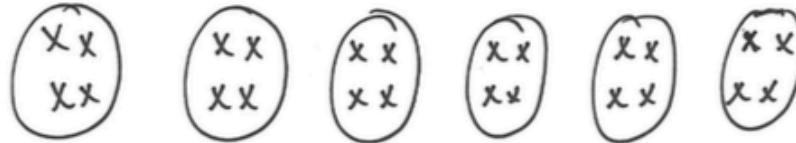
- Did this student struggle with multiplication, division, or both?
- Did this student struggle with a particular factor?
- Did the student consistently miss problems with the unknown in a particular position?

## Third Grade Module 1: End-of-Module Assessment Task Key

Name Gina

Date \_\_\_\_\_

1. Mr. Lewis arranges all the desks in his classroom into 6 equal groups of 4. How many desks are in his classroom? Show a picture and multiplication sentence in your work.



$$6 \times 4 = 24$$

There are 24 desks  
in his classroom.

- a. What does the product in your multiplication sentence represent?

The product is 24 and it represents the  
total number of desks.

- b. Fill in the blanks below to complete a related division sentence.

$$24 \div 4 = 6$$

- c. What does the quotient in part (b) represent?

The quotient is 6 and it represents the  
number of equal groups of desks.

## Third Grade Module 1: End-of-Module Assessment Task Key (continued)

2.

- a. Draw an array that shows 9 rows of 2. Write a multiplication sentence to represent the array, and circle the factor that represents the number of rows.

00  
00  
00  
00  
00  
00  
00  
00  
00

$$\textcircled{9} \times 2 = 18$$

- b. Draw another array that shows 2 rows of 9. Write a different multiplication sentence and circle the factor that represents the size of the row.

0000000000  
0000000000

$$2 \times \textcircled{9} = 18$$

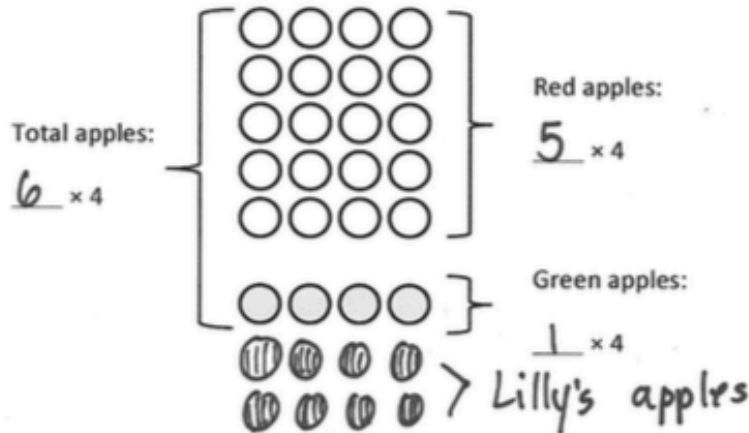
- c. Explain the relationship between the two arrays using number sentences and words.

The arrays have the same totals, 18 and they have the same factors, 2 and 9. The factors switch places. In  $9 \times 2 = 18$ , the 9 is the number of rows, but in  $2 \times 9 = 18$ , the 9 is the size of the row. It's the commutative property!

### Third Grade Module 1: End-of-Module Assessment Task Key (continued)

3. Ms. Park buys a tray of apples for a class party. There are 5 rows of 4 red apples. There is 1 row of 4 green apples.

- a. The picture below shows Ms. Park's apples. Fill in the blanks to complete the expressions.



- b. Fill in the unknowns in the equation below to match the picture of the apples in part (a). Use the break apart and distribute strategy to find the total number of apples Ms. Park bought.

$$\begin{aligned} 6 \times 4 &= 5 \times 4 + 1 \times 4 \\ 6 \times 4 &= 20 + 4 \\ 6 \times 4 &= 24 \end{aligned}$$

Ms. Park bought 24 apples.

- c. Lilly brings 8 green apples for the class party. Show Lilly's green apples on the picture in part (a). Then, fill in the unknowns in the equation below to match the new picture. Solve to find the total number of apples.

$$\begin{aligned} 8 \times 4 &= 5 \times 4 + 3 \times 4 \\ 8 \times 4 &= 20 + 12 \\ 8 \times 4 &= 32 \end{aligned}$$

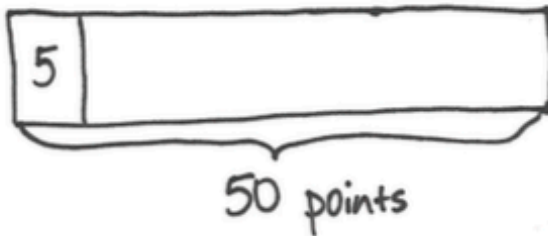
There are 32 apples in all.



### Third Grade Module 1: End-of-Module Assessment Task Key (continued)

4. Mr. Myer's class plays a game. The class earns 5 points each time they answer a question correctly. The class earns 50 points playing the game on Monday.

- a. How many questions did the class answer correctly? Show a picture and division sentence in your work.



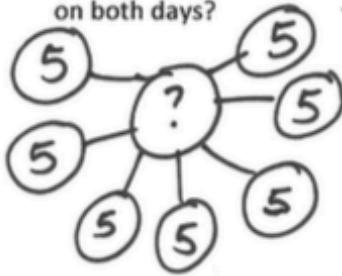
$$50 \div 5 = 10$$

The class answered  
10 questions correctly.

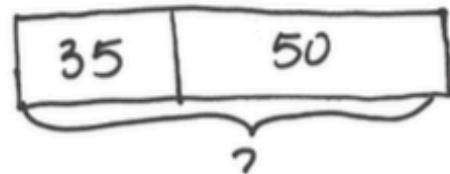
- b. Mr. Myer uses the equation  $5 \times \underline{\quad} = 50$  to find how many questions the class answered correctly. Is his method correct? Why or why not?

Yes, his method is correct. I solved using division, but he is solving using multiplication. The blank shows he is looking for a factor.  $5 \times 10 = 50$ , so he gets the same answer as  $50 \div 5 = 10$ . Both show the class answered 10 questions correctly.

- c. The class answered 7 questions correctly Tuesday. What is the total number of points the class earned on both days?



$$7 \times 5 = 35$$



$$35 + 50 = 85$$

The class earned 85 points  
on both days.



## Third Grade Module 1: End-of-Module Assessment Task Key (continued)

5. Complete as many problems as you can in 100 seconds. Your teacher will time you and tell you when to stop.

$4 \times 1 = \underline{4} \quad 3 \div 1 = \underline{3} \quad 10 \times \underline{2} = 20 \quad 2 \times 3 = \underline{6} \quad 10 \div 5 = \underline{2}$

$4 \div 2 = \underline{2} \quad 2 \times \underline{2} = 4 \quad 15 \div 5 = \underline{3} \quad 10 \times 3 = \underline{30} \quad 4 \times \underline{3} = 12$

$3 \times 3 = \underline{9} \quad 5 \times \underline{3} = 15 \quad 16 \div 4 = \underline{4} \quad 2 \times \underline{4} = 8 \quad 10 \times 4 = \underline{40}$

$2 \times 4 = \underline{8} \quad 12 \div 4 = \underline{3} \quad 4 \times \underline{5} = 20 \quad 5 \times 5 = \underline{25} \quad 50 \div 10 = \underline{5}$

$15 \div 3 = \underline{5} \quad 2 \times \underline{5} = 10 \quad 24 \div 4 = \underline{6} \quad 10 \times 6 = \underline{60} \quad 5 \times \underline{6} = 30$

$2 \times 6 = \underline{12} \quad 4 \times \underline{6} = 24 \quad 35 \div 5 = \underline{7} \quad 3 \times \underline{7} = 21 \quad 10 \times 7 = \underline{70}$

$4 \times 7 = \underline{28} \quad 14 \div 2 = \underline{7} \quad 3 \times \underline{8} = 24 \quad 5 \times 8 = \underline{40} \quad 80 \div 10 = \underline{8}$

$32 \div 4 = \underline{8} \quad 10 \times \underline{8} = 80 \quad 27 \div 3 = \underline{9} \quad 2 \times 9 = \underline{18} \quad 5 \times \underline{9} = 45$